

summary of the variation of each Noctuid species to aid the ordinary worker to classify the series of forms of any particular species in which he is interested, and to emphasise a stage in the advance of our study of variation.—H.J.T.

In addition to the above there is much further matter in hand, with promises of several plates, and subscribers are asked to further the interests of the magazine in all ways in their power and opportunity.

Myrmecophilous Notes for 1924.

By HORACE DONISTHORPE, F.Z.S., F.E.S., ETC.

The greater part of my work with ants and myrmecophiles this year was taken up by my investigations into the habits of the tree-ant *Acanthomyops* (*Donisthorpea*) *brunneus*. A complete account of this has already been published in three of my last papers—Nos. 122, 123 and 124.

The following notes and observations still remain, however, to be put on record.

FORMICIDAE.

Myrmica laevinodis, Nyl.—In June, many old and hollow willow trees on Sunbury Island harboured colonies of this ant; the ♂ ♀ hunting all over the trunks, and as high as it was possible to see them up the branches.

M. ruginodis, Nyl., *M. laevinodis*, Nyl., and *M. scabrinodis*, Nyl., were all common in Wicken and Burwell Fen in May. The first named species does not appear to have been recorded from Cambridge-shire before.

Acanthomyops (*D.*) *niger*, L., and *A. (C.) umbratus*, Nyl.—Marriage flights of both these species occurred in Putney on the afternoon of September 5th. At 5 o'clock, summer time, in a road near my house, a dealated ♀ *umbratus* was captured running on the path with a dead *niger* ♂ in her jaws. She would not let go of her captive even after she had been placed in the killing bottle. This curious proceeding was first pointed out, I believe, by Mr. Crawley [*Ent. Rec.*, 27, 205 (1915)]; and as he, no doubt correctly suggested, it is to enable the *umbratus* ♀ to more easily found her colony in a *niger* nest. I have twice before the present record noticed and published occurrences of this phenomenon [*Ent. Rec.*, 29, 49 (1917): 30, 24 (1918)].

On October 12th another marriage flight of *A. (D.) niger* occurred at Putney at 3.30 p.m. Sparrows and starlings were "hawking" the winged ants in the air, and some of the former were jumping off the ground and catching the ants as they came out from the brick work of a wall.

Marriage flights of *Acanthomyops* species were noticed in August—at Box Hill, on August 6th, several colonies of *A. (C.) flavus* were swarming in the station at 4.45 p.m.

Formica rufa, L.—On September 7th, at Abbots Wood near East bourne, several nests of this ant were investigated and the following myrmecophiles noted:—*Leptothorax acervorum*, F., small colonies and a few specimens in every nest; *Thiasophila angulata*, Er.; *Clythra* 4 *punctata*, L., larval cases, a naked larva being found at large and

unhurt in one nest; the little spider *Thyreosthenius biorata*, Camb., occurred in all; ♂♂ of the Dipteron *Ceratopogon myrmecophilus*, Egg., were hovering over the hillocks; and a number of the small mite *Laelapsis oophilus*, free in the nests. Earlier in the year they would be found in the egg-masses of the ant.

INTRODUCED SPECIES.

✓ *Camponotus* (*Camponotus*) *herculeanus*, L., subsp. *pennsylvanicus*, Retz.—On July 25th Mr. Saunt sent me a number of live ♂♂, winged ♀♀, and ♂♂ of the above subspecies from a timber yard at Coventry, together with some large pieces of wood in which the ants had been found. I fixed the ants up in 2 "Janet" nests, feeding them on flies, honey, etc. On October 7th Mr. Saunt again sent me a large colony of the same ant—this consisted of very many 44 and ♂♂, two dealated ♀♀, and a few larvae. Having found that the old colony readily accepted ♂♂ from the new lot, I placed the "Janet" nest in a large zinc tray with a water trough all round it, and dumped all the new ants on to the tray. During the night the latter joined forces with the older colony, all the ants entering the nest through a hole which I had bored in the side. Subsequently they made other holes, which they excavated right through the plaster sides, with their mandibles. The ants were fed with raw meat, cake, fruit, honey, etc., and they usually come out at night to feed. The larvae have grown and the colony is doing well, but no eggs have been laid yet. From the above account two points stand out—(1) that both colonies must have sprung from a common stock, and (2) that the larvae had been bred in this country.

It seems curious that this ant, which has frequently been found in this country in introduced timber, in timber yards (see *British Ants*, p. 348) and dockyards, etc., has not established itself at some time or other with us. I can only think that it is our wet winters which have prevented this. This ant occurs in Canada and extends to Texas and Louisiana. The ♀ after the marriage flight gets rid of her wings and selects a hole, or the empty cocoon of a Longicorn beetle, etc., under the loose bark of a tree or stump, in which to found her colony. As we have seen, ♂♂ and winged ♀♀ occurred in plenty, and there would seem nothing to prevent a ♀, after her marriage flight, from flying to the nearest wood, or forest, and founding a colony.

COLEOPTERA.

Thiasophila inquilina, Märk.—On July 3rd this insect was taken in the nest of *A. (D.) fuliginosus* at Woking, which I have been visiting ever since August 27th. 1915, when the colony was first discovered in the act of taking possession of the birch tree they still inhabit [see *Ent. Rec.*, 35, 3-5 (1923)]. This is the 36th species noted to date. Mickleham and Oxshott are the only two other records that I know of for this beetle in Surrey.

Atheta brunnea, F. (*depressa*, Gr.).—Over a dozen specimens of this species were taken in company with *Drusilla canaliculata*, F., in the runs of *A. (D.) fuliginosus* in a hedge-row at Wicken on May 21st. Though not usually taken with ants, on this occasion they were evidently quite at home with the *fuliginosus*. Moreover Rouget has

taken it with the same ant in France [see *André Rev. Mag. Zool.* (S.8) 2, 210 (1874)].

Staphylinus latebricola, Gr.—On July 10th a fine specimen of this beetle was taken, right among the ants of a strong colony of *Myrmica ruginodis*, inhabiting a partly rotten log in the New Forest. This beetle no doubt preys on ants as does its near ally *S. stercorarius*, Ol. Other records of its capture with ants known to me are as follows:—Märkel [*Zeit. f. Entom. Germar*, 5 (1844)] records it with *Formica rufa* in Germany; it was captured by E. W. Janson with ants on the Surrey Hills above Mickleham and Reigate [*Ent. Week. Intell.*, 2, 85-6 (1857)]; Blatch [*Brit. Assn. Handbook*, Birmingham, 298 (1886)] records it in nests of ants at Sutton Park and Bewdley; Fowler [*Col. Brit. Isles*, 2, 251, (1888)] writes—sometimes in company with *Formica rufa*. Finally on August 4th, 1918, the late W. E. Sharp captured a fine specimen at Crowthorne, which had emerged from a hole in the lawn, whence a number of winged *A. (C.) umbratus* had been pouring [see Donisthorpe *Ent. Rec.*, 31, 3 (1919)].

HYMENOPTERA PARASITICA.

The following captures of Hymenoptera taken with ants have not been recorded before. I am indebted to Messrs. L. A. Box, and Claude Morley for their names.

Conostigmus testaceipes, Kief.—Specimens were taken in company with *A. (D.) fuliginosus* at Weybridge, on August 18th and 20th, and September 8th, 1914.

Conostigmus alutaceus, Thoms., with *A. (D.) brunneus* in Windsor Forest, September 3rd, 1924.

Ceraphron spinifer, Kief., with *A. (D.) fuliginosus* at Weybridge, August 20th, 1914.

Ceraphron abdominalis, Thoms., with *F. rufa* at Westerham, September 17th, 1921.

Atlista scotica, Kieff., and *Diapria aequata*, Thoms., ♂, ♀, with *A. (D.) brunneus* in Windsor Forest, September 3rd, 1924.

Proctotrypes fuscipes, Hal., with *A. (D.) fuliginosus* at Weybridge, August 28th, 1914.

Loxotropa subregonensis, Box, with *A. (D.) fuliginosus* at Weybridge, August 20th and September 7th, 1914.

Gonatopus distinguendus, Kief. with *A. (D.) niger* at Cumnor, September 6th, 1923.

Kleditoma psiloides, West with *A. (D.) fuliginosus* at Weybridge, August 20th, 1914.

Bracon anthracinus, Nees, in the Woking *fuliginosus* nest, July 3rd, 1924. The 37th species of myrmecophile from this nest.

DIPTERA.

Pseudacteon formicarum, Verr.—On July 3rd a colony of *Myrmica ruginodis* was found in the partly rotten stump of a tree in Windsor Forest. On breaking open the stump many of the ♂ ♂ rushed out, and immediately a number of this little fly put in an appearance and hovered over the ants. It will be remembered that Father Wasmann in a paper on *P. formicarum* [*Biol. Zentralb.*, 38, 317-29 (1918)] gave it as his opinion, that *A. (D.) niger* was the real host of this Dipteran.

Recently Father Schmitz has described another species—*P. lundbecki* (*Natuurh. Maandb.*, **13**, 138-42 (1924)]—and he suggests that perhaps some of the various specimens, taken by Donisthorpe with different species of ants in England, belong to the new species.

The following is a list of the different occasions (and ants) when I have taken what I have believed to be *P. formicarum*.

HOST.		LOCALITY.		DATE.
<i>A. (D.) fuliginosus</i>	...	Wellington College	...	19.vi.09.
<i>F. sanguinea</i>	...	Bewdley	...	21.vii.09.
<i>A. (D.) niger</i>	...	Bewdley	...	21.vii.09.
<i>A. (C.) flavus</i>	...	Bewdley	...	21.vii.09.
<i>A. (D.) niger</i>	...	St. Helens, I. of W.	...	23.viii.09.
<i>A. (D.) fuliginosus</i>	...	Darenth Wood	...	24.ix.09.
<i>F. sanguinea</i>	...	Weybridge	...	22.vii.11.
<i>A. (C.) umbratus</i>	...	Weybridge	...	22.vii.11.
<i>M. lobicornis</i>	...	Weybridge	...	22.vii.11.
<i>F. sanguinea</i>	...	Woking	...	21.v.13.
<i>F. sanguinea</i>	...	Weybridge	...	29.vii.13.
<i>A. (C.) flavus</i>	...	Weybridge	...	29.vii.13.
<i>Tapinoma erraticum</i>	...	Weybridge	...	29.vii.13.
<i>A. (D.) niger</i>	...	Shanklin, I. of W.	...	19.viii.13.
<i>A. (D.) niger</i>	...	Blackgang, I. of W.	...	26.viii.13.
<i>A. (D.) niger</i>	...	Weybridge	...	10.viii.14.
<i>A. (D.) alienus</i>	...	Weybridge	...	20.viii.14.
<i>F. sanguinea</i>	...	Woking	...	14.viii.20.
<i>M. ruginodis</i>	...	Windsor Forest	...	7.vi.24.

Aphiochaeta aequalis, Wood.—Many specimens of the imago, and also puparia, of this little Phorid, were taken in two nests of *A. (D.) brunneus* in Windsor Forest on September 3rd. I am indebted to Mr. Collin for its identification. There is no doubt that this species is, to say the least of it, strongly attracted to ants' nests. I have previously found it in numbers, and also the puparia, with *A. (D.) fuliginosus* at Darenth Wood, 6.vi.09 and 2.iv.10; Wellington College, 17.iv.20; and Woking, 19.iii.20 and 20.vi.20.

Scatopse transversalis, L.—This little Dipteron occurred freely at Commander Walker's *fuliginosus* nest at Tubney on July 16th. Mr. Edwards tells me that the specimens I have previously taken in various nests of *A. (D.) fuliginosus* and have always recorded as a var. of *S. transversalis* (teste Verrall), as well as those taken with *F. rufa*, are all the true *S. transversalis*, L.

HETEROPTERA.

Pilophorus perplexus, D. & S.—On July 3rd I observed several small *Pilophorus* larvae dodging about among the ♀♀ from a colony of *A. (D.) fuliginosus* on an oak tree at Woking. These larvae were identical with those found with *A. (D.) brunneus* in Windsor Forest, and which eventually proved to be *P. perplexus* [see *Ent. Rec.*, **36**, 136 (1924)].

Mr. E. A. Butler, having also found young forms of a *Pilophorus* in company with *A. (D.) niger* on oaks at Tooting-Bec Common,

asked me to go there later and see if I could get the adult forms. This I did on July 30th, and again they proved to be *P. perplexus*.

APHIDIDAE.

Stomaphis quercus, L.—On July 16th I found several examples of this rare Aphid on an oak tree at Tubney attended by ♂♂ from a colony of *A. (D.) fuliginosus* inhabiting the tree. I have previously found it at Woking and Wimbledon Common, but always attended by the same ant.

COCCIDAE.

Ripsia tomlini, Newst., and *R. subterranea*, Newst., occurred together in nests of *A. (D.) niger* situated under stones at Eastbourne on September 6th. This is a new county record for both species. *R. tomlini* was not, as is sometimes supposed, first described from British specimens, but from examples taken by Miss Tomlin in ants' nests at Moulin Huet, Guernsey, in 1891. It was first captured in Britain by me on April 19th, 1901, in nests of *A. (D.) niger* on the Isle of Portland [*Ent. Rec.*, **14**, 40 (1902)].

COLLEMBOLA.

Cyphodeirus albinus, Nic., occurred in nests of *A. (C.) flavus* at Hayburn Wake and Stanton Dale in Yorkshire on May 31st.

ACARINA.

Trachyuropoda excarata, Wasm.—On September 6th I captured a number of examples of this small mite in nests of *A. (D.) niger* at Eastbourne.

CRUSTACEA.

Platyarthrus hoffmanseggii, Brdt., was observed in nests of *A. (D.) niger* at Eastbourne on September 6th.

Lake Maggiore in Early August of 1923.

By O. R. GOODMAN, F.E.S., F.Z.S.

Having sampled the interesting Lepidoptera of the Pyrenees in July, 1922, my son and I decided that our next holiday must be spent in the Italian Lakes and the Engadine, conjuring up thoughts of *Neptis lucilla*, *Heteropterus morpheus* and *Erebia flavofasciata*, localities for which had been very kindly given us by the Rev. G. Wheeler. Business, however, unfortunately detained us until the end of July so that the two first mentioned insects were practically in rags, and the last, entirely over.

Leaving London on July 28th, travelling *via* Paris, we woke up at Lausanne, and the ladies of the party much enjoyed the lovely views obtained whilst passing up the Rhone Valley, and we pointed out to each other the favoured and famous localities of former years, such as the Cliffs of Vernayaz of *Polyommatus amandus* fame, the Tour de Batiaz for *Melitaea deione* var. *berisalensis*, and the noted Pfynwald. After passing through the Simplon Tunnel, we soon arrived at our